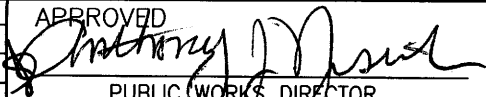
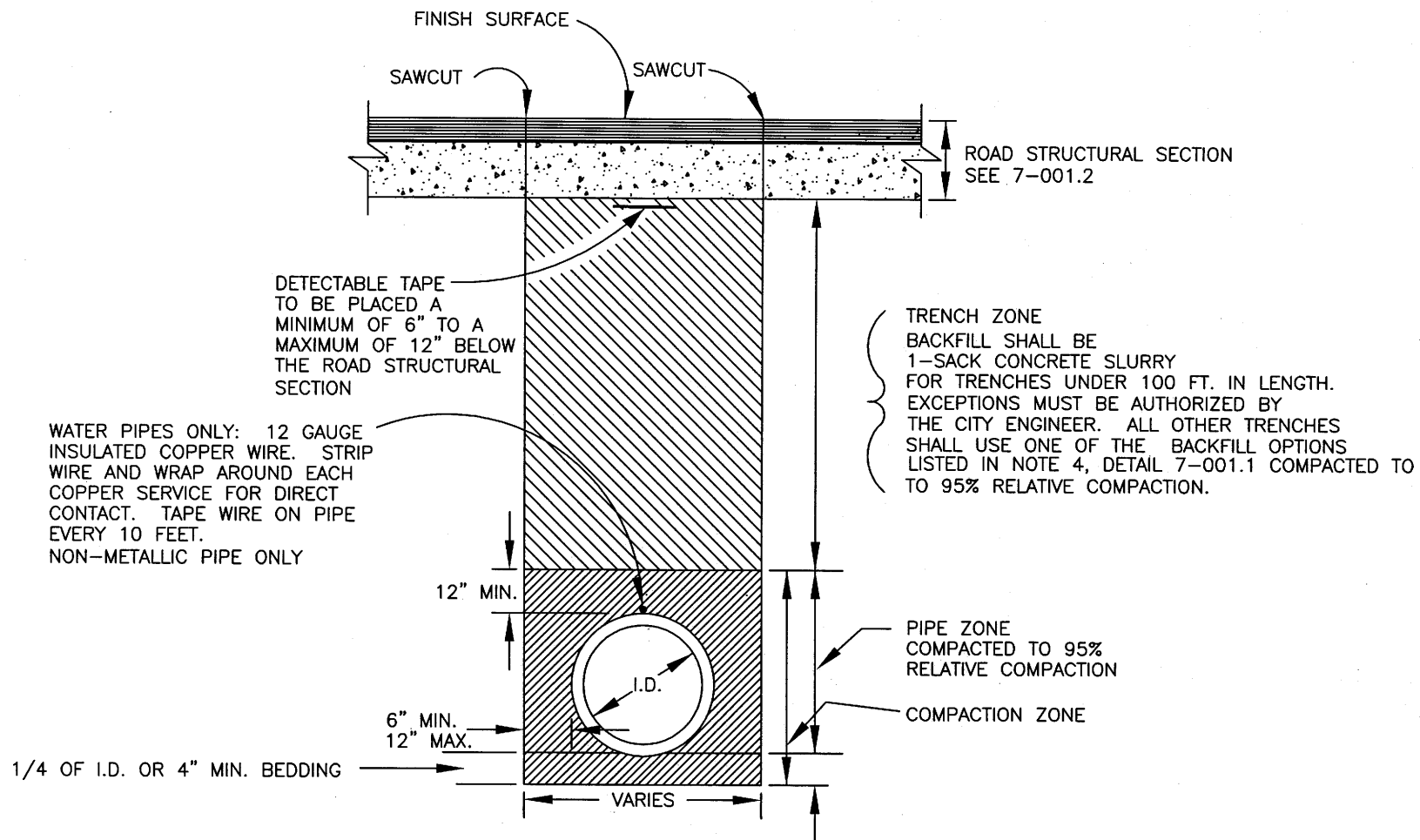


U N D E R G R O U N D U T I L I T I E S

<u>NUMBER</u>	<u>TITLE</u>
7-001.0	TRENCH BEDDING AND BACKFILL
7-001.1	TRENCH BEDDING AND BACKFILL - NOTES
7-001.2	TRENCH PAVING REQUIREMENTS
7-002.0	PIPE REINFORCEMENT
7-003.0	WATER-SEWER SEPARATION REQUIREMENT - GENERAL NOTES
7-003.1	WATER-SEWER SEPARATION REQUIREMENTS - SEWER MAIN CONSTRUCTION
7-003.2	WATER-SEWER SEPARATION REQUIREMENTS - WATER MAIN CONSTRUCTION
7-004.0	UTILITY SEPARATION FROM CITY WATER, SEWER, RECLAIMED PIPELINES, AND STORM DRAINS

REVISED	DATE	APPROVED	CITY OF SANTA BARBARA - PUBLIC WORKS DEPARTMENT	STANDARD DETAIL
			TABLE OF CONTENTS	7-000.0-06
		PUBLIC WORKS DIRECTOR	DATE	



TYPICAL SECTION

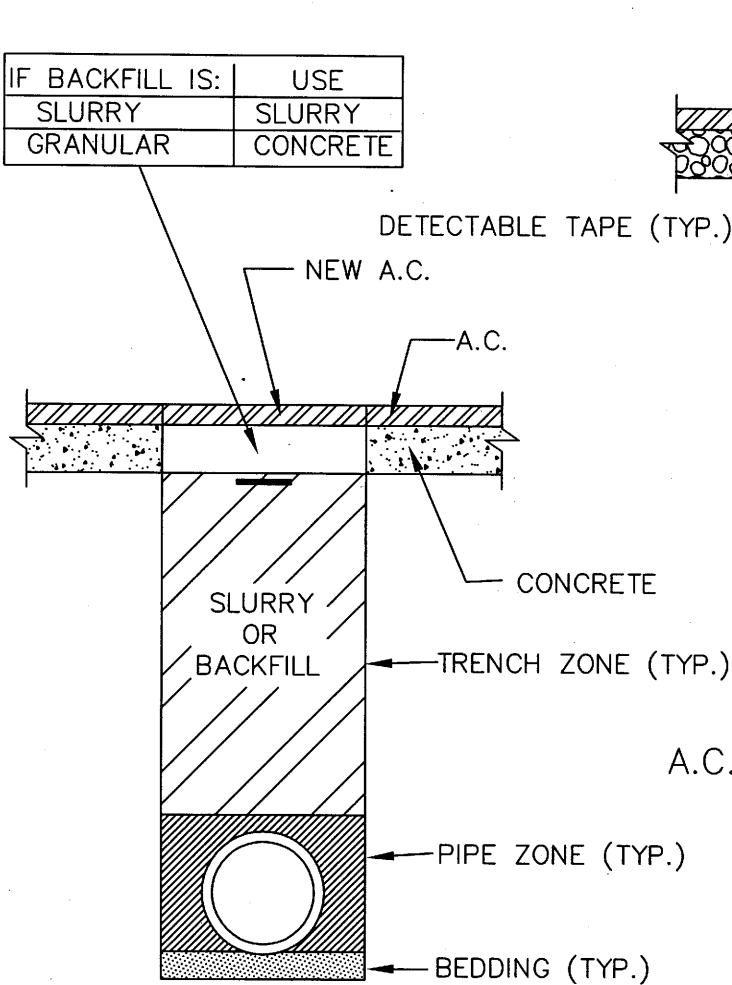
REVISED	DATE	APPROVED	CITY OF SANTA BARBARA - PUBLIC WORKS DEPARTMENT	STANDARD DETAIL
		<i>Anthony J. [Signature]</i>		
		PUBLIC WORKS DIRECTOR	TRENCH BEDDING AND BACKFILL	7-001.0-06
		DATE 2/8/07		

NOTES:

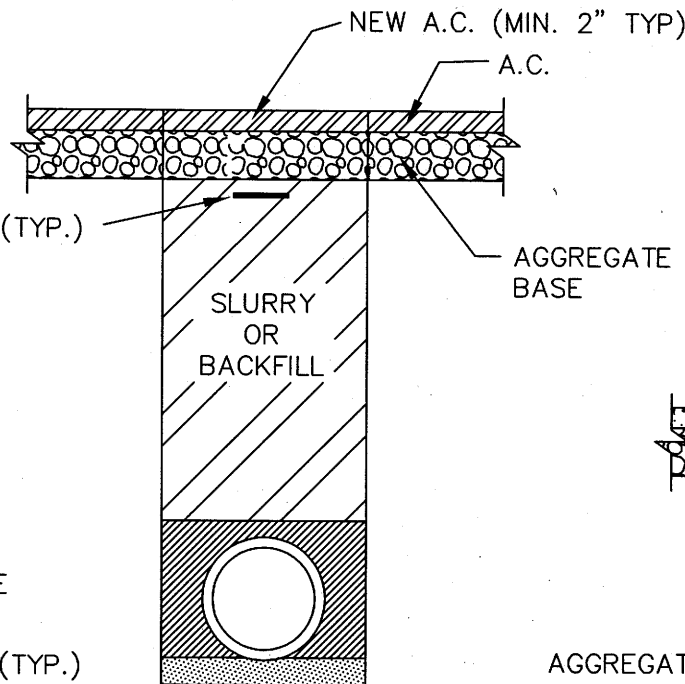
1. Improvements constructed under this Standard Detail shall conform to applicable provisions of the Standard Specifications for Public Works Construction, current Edition.
2. Trench width shall be as shown, unless otherwise specified on plans.
3. Pipe zone material shall be sand with a sand equivalent greater than 50.
4. Backfill shall have a maximum of 8-inch lifts and meet the requirements of one of the following:
 - a) Crushed Aggregate Base;
 - b) Crushed Miscellaneous Base;
 - c) Backfill material with a sand equivalent greater than 50.
5. The Engineer shall approve all backfill material prior to backfilling trench. Contractor must submit sand equivalent tests, per ASTM D2419, for all backfill and bedding, both native and imported, and identify the source of the material.
6. Bedding and backfill shall be compacted mechanically. Compaction by flooding, ponding, or jetting shall not be permitted.
7. Compaction Test, per ASTM D1557, current revision, will be required by the Engineer at various depths in the trench, at intervals not to exceed 250 feet. All tests shall be paid for by the Contractor, and performed by a laboratory approved by the City, unless otherwise specified.
8. A continuous length of 3-inch wide detectable tape, Terratape or approved equal, shall be placed in a direct line over all pipe, as shown. Tape color shall be blue for water, green for sewer, yellow for electrical, and purple for reclaimed water.
9. The roadway structural section shall be of the same material and thickness as existing, but shall be a minimum of 2-1/2-inches asphalt over 6-inches aggregate base for residential streets and 3-1/2-inches asphalt over 8-inches aggregate for commercial streets. For all concrete streets, the minimum section shall be 6-inches of Class 560-C-3250 concrete over 6-inches aggregate base.

REVISED	DATE	APPROVED	CITY OF SANTA BARBARA - PUBLIC WORKS DEPARTMENT	STANDARD DETAIL
			TRENCH BEDDING AND BACKFILL - NOTES	7-001.1-06
		PUBLIC WORKS DIRECTOR		
		DATE		

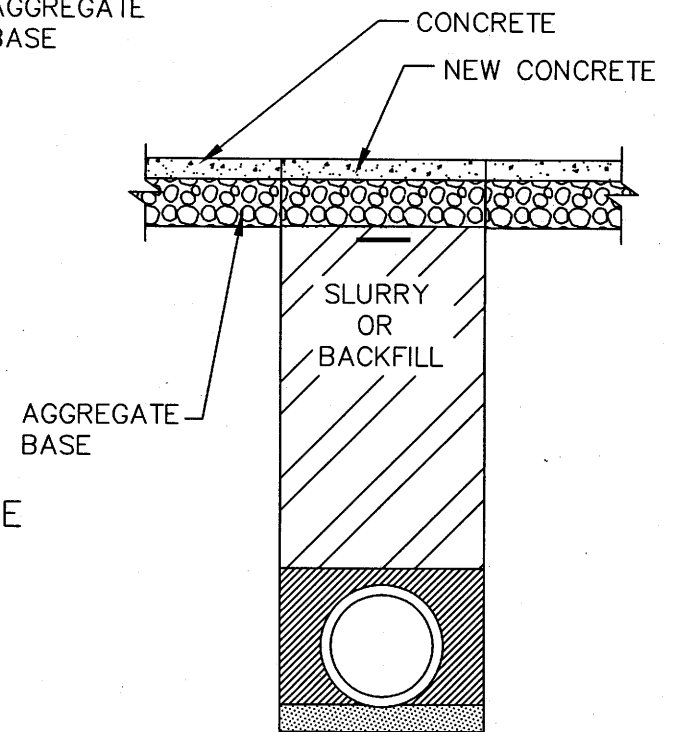
IF BACKFILL IS:	USE
SLURRY	SLURRY
GRANULAR	CONCRETE



A.C. OVER CONCRETE

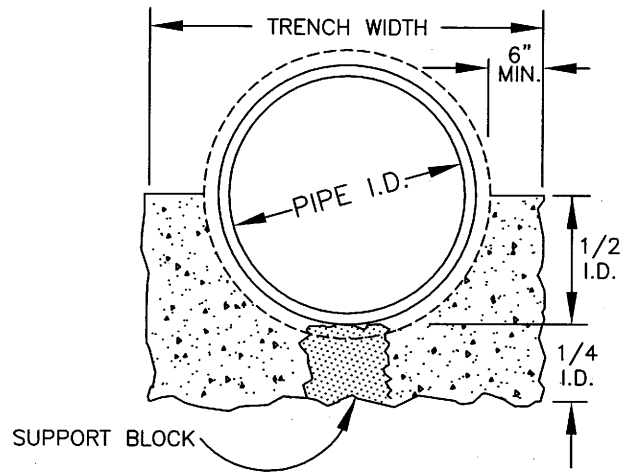


A.C. OVER AGGREGATE BASE

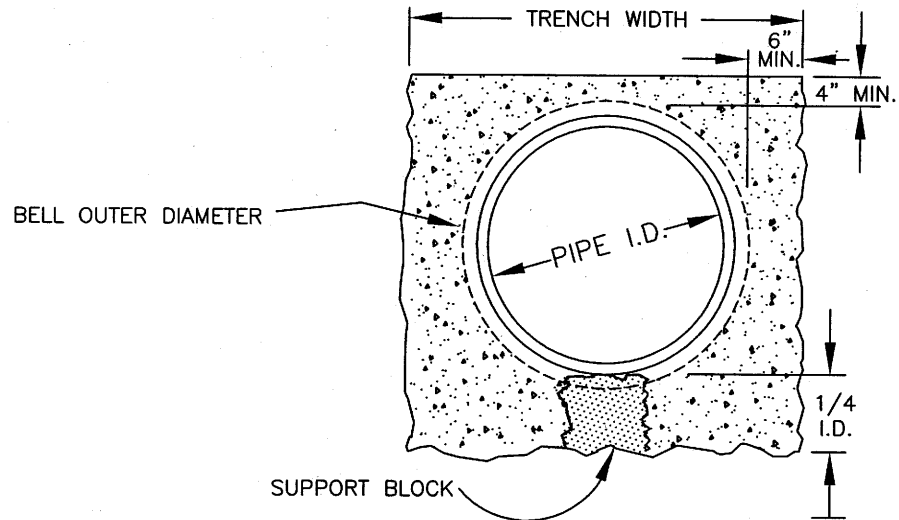


CONCRETE OVER AGGREGATE BASE

REVISED	DATE	APPROVED	CITY OF SANTA BARBARA - PUBLIC WORKS DEPARTMENT	STANDARD DETAIL
		<i>Anthony J. Dineen</i>	TRENCH PAVING REQUIREMENTS	7-001.2-06
		PUBLIC WORKS DIRECTOR		
		2/8/07		
		DATE		



CONCRETE CRADLE



CONCRETE ENCASEMENT

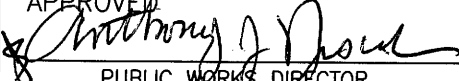
NOTES:

1. Concrete shall be Class 450-C-2000 per Standard Specifications for Public Works Construction unless otherwise specified.
2. Support blocks may be of concrete block or brick.
3. Cradle and encasement to be placed on native undisturbed soil, or as directed by the City Engineer or his/her designee.

REVISED	DATE	APPROVED	CITY OF SANTA BARBARA - PUBLIC WORKS DEPARTMENT	STANDARD DETAIL
		<i>Anthony J. [Signature]</i>		
		PUBLIC WORKS DIRECTOR	PIPE REINFORCEMENT	7-002.0-06
		DATE		

GENERAL NOTES:

1. The "California Waterworks Standards" sets forth the minimum separation requirements for water mains and sewer lines. These standards, contained in Section 64630, Title 22, California Administrative Code, specify:
 - a. Parallel Construction: The horizontal distance between pressure water mains and sewer lines shall be at least 10 feet.
 - b. Perpendicular Construction (Crossing): Pressure water mains shall be at least 4-inches per 7-003.1 above sanitary sewer lines where these lines must cross.
 - c. Separation distances specified above shall be measured from the nearest edges of the facilities.
 - d. Common Trench: Water mains and sewer lines shall be installed in different trenches with appropriate separation.
2. When local conditions, such as available space, limited slope, existing structures, etc., create a situation where there is no alternative but to install water mains or sewer lines at a distance less than that required by these Standards, the following alternative construction criteria shall be followed. These Standards are applicable under normal conditions for sewage collection lines and water distribution mains. More stringent requirements may be specified by the engineer if conditions such as high groundwater exist.
3. Sewer lines shall not be installed within 25 feet horizontally of a low head (5 psi or less pressure) water main.
4. New water mains and sewers shall be pressure tested where the conduits are located ten feet apart or less.
5. In the installation of water mains or sewer lines, measures should be taken to prevent or minimize disturbances of the existing line. Disturbance of the supporting base of this line could eventually result in failure of this existing pipeline.
6. Special consideration shall be given to the selection of pipe materials if corrosive conditions are likely to exist. These conditions may be due to soil type and/or the nature of the fluid conveyed in the pipe, such as a septic sewage which produces corrosive hydrogen sulfide.
7. Sewer Force Mains:
 - a. Sewer force mains shall not be installed within ten feet (horizontally) of a water main.
 - b. When a sewer force main must cross a water line, the crossing should be as close as practical to the perpendicular. The sewer force main should be at least one foot below the water line.
 - c. When a new sewer force main crosses under a existing water main, all portions of sewer force main within ten feet (horizontally) of the water main shall be enclosed in a continuous sleeve.
 - d. When a new water main crosses over a existing sewer force main, the water main shall be constructed of pipe materials with a minimum rated working pressure of 200 psi or equivalent pressure rating.

REVISED	DATE	APPROVED	CITY OF SANTA BARBARA - PUBLIC WORKS DEPARTMENT	STANDARD DETAIL
			WATER-SEWER SEPARATION REQUIREMENTS	7-003.0-06
		PUBLIC WORKS DIRECTOR	GENERAL NOTES	
		2/8/07 DATE		

SEWER MAIN CONSTRUCTION

PARALLEL CONSTRUCTION

If a sanitary sewer is to be located within 10 feet of a water main or service lateral within any of the indicated zones, sewer construction will be required as shown.

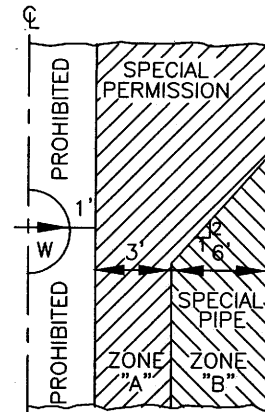
PERPENDICULAR CONSTRUCTION

If sanitary sewer or house sewer lateral crosses a water main or service lateral within any of the indicated zones, sewer construction will be required as shown.

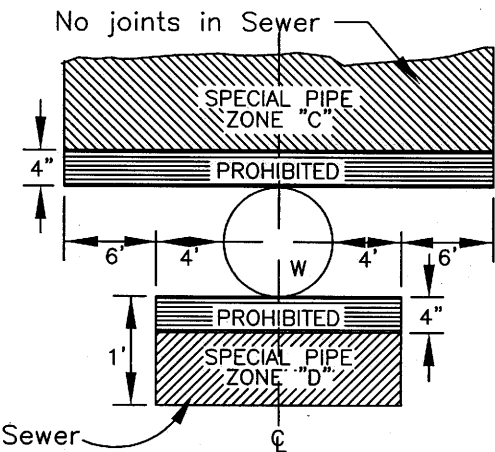
SEWER MAIN CONSTRUCTION

ZONE SPECIAL CONSTRUCTION REQUIRED FOR SEWER

- A Sewer lines parallel to water mains shall not be permitted in zone A without approval from the responsible health agency and the City of Santa Barbara.
- B A sewer line placed parallel to a water line in zone B shall be constructed of one of the following:
 - 1. Plastic sewer pipe with rubber ring joints (per ASTM D3034) or equivalent.
- C/D A sewer line crossing a water main zone C or D shall be constructed of:
 - 1. A continuous section of Class 200 (DR 14 per AWWA C900) plastic pipe or equivalent, centered over the pipe being crossed.
 - 2. P.V.C. or P.E. sewer pipe within a continuous sleeve.



PARALLEL CONSTRUCTION



PERPENDICULAR CONSTRUCTION

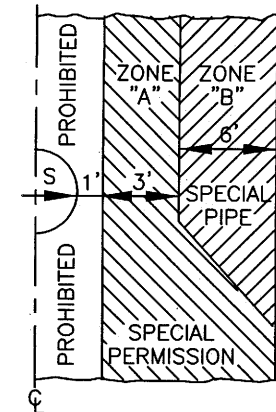
REVISED	DATE	APPROVED	CITY OF SANTA BARBARA – PUBLIC WORKS DEPARTMENT	STANDARD DETAIL
		<i>Anthony J. Moore</i>	WATER-SEWER SEPARATION REQUIREMENTS	7-003.1-06
		PUBLIC WORKS DIRECTOR	SEWER MAIN CONSTRUCTION	
		DATE		

WATER MAIN CONSTRUCTION

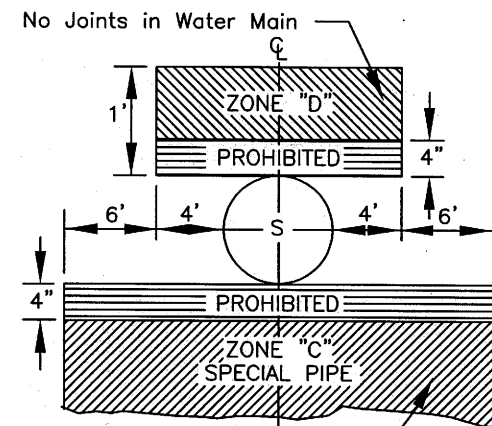
ZONE SPECIAL CONSTRUCTION REQUIRED FOR WATER

- A** No water main parallel to sewers shall be constructed in zone A without approval from the responsible health agency and the City of Santa Barbara.
- B/C/D** If the sewer paralleling the water main does not meet the zone B, C, or D requirements, the water main shall be constructed of one of the following:
1. Ductile iron pipe with hot dip bituminous coating.
 2. Class 200 pressure rated plastic water pipe (DR 14 per AWWA C900) or equivalent.
 3. Class 200 HDPE

Note: This construction criteria applies to house laterals that cross above a pressure water main but not to those house laterals that cross below a pressure water main.



PARALLEL CONSTRUCTION



PERPENDICULAR CONSTRUCTION (CROSSINGS)

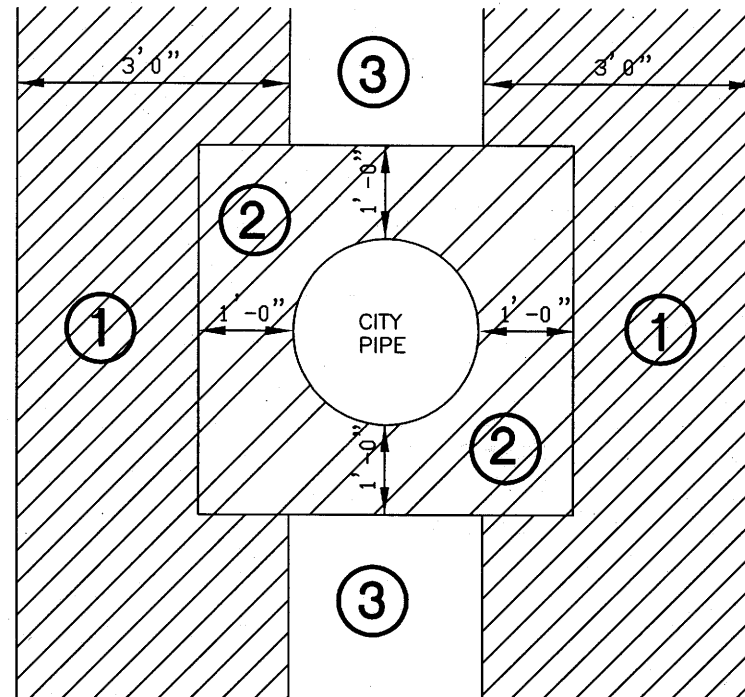
REVISED	DATE	APPROVED	CITY OF SANTA BARBARA - PUBLIC WORKS DEPARTMENT	STANDARD DETAIL
		<i>Anthony J. [Signature]</i>	WATER-SEWER SEPARATION REQUIREMENTS	7-003.2-06
		PUBLIC WORKS DIRECTOR	WATER MAIN CONSTRUCTION	
		DATE 2/2/07		

ZONES:

1. UTILITIES SHALL BE INSTALLED WITH A MINIMUM DISTANCE 3' FROM CITY PIPING UNLESS APPROVED BY THE WATER RESOURCES MANAGER.
2. NO UTILITY CROSSINGS SHALL BE INSTALLED WITHIN 1' OF CITY PIPING. NO EXCEPTIONS SHALL BE APPROVED.
3. EXCEPT FOR CROSSING, NO UTILITIES SHALL BE INSTALLED ABOVE OR BELOW CITY PIPING. NO EXCEPTIONS SHALL BE APPROVED.

NOTE:

IT IS THE OBLIGATION OF THE CONTRACTOR TO PROTECT AT ALL TIMES THE INTEGRITY OF CITY PIPING AND TRENCHES, AT ANY PROXIMITY.



SEPARATION ZONES

REVISED	DATE	APPROVED	CITY OF SANTA BARBARA – PUBLIC WORKS DEPARTMENT	STANDARD DETAIL
		<i>[Signature]</i>	UTILITY SEPARATION FROM CITY WATER, SEWER,	7-004.0-06
		PUBLIC WORKS DIRECTOR	RECLAIMED PIPELINES, AND STORM DRAINS	
		DATE		